



**ASIAN SCHOOL OF TECHNOLOGY,
BHUBANESWAR**

DEPARTMENT OF CIVIL ENGINEERING

LESSON PLAN

Discipline: Civil engineering	Semester : 3 rd	No. of periods available: 51	Name of Teaching Faculty: Bisnupriya Jena
Subject: Railway & Bridge Engineering	No. of Days/ per week class allotted : 4 periods per week		No. of weeks : 13
Week	Class Day		Topics to be covered
1 st	1 st	1	Railway terminology
	2 nd	1	Advantages of railways
	3 rd	1	Classification of Indian Railways
	4 th	1	Definition and components of a permanent way
2 nd	5 th	1	Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions
	6 th	1	Rails
	7 th	1	Assignment Evaluation
	8 th	1	Sleepers
3 rd	9 th	1	Ballast
	10 th	1	Fixtures for Broad gauge
	11 th	1	Typical cross – sections of single & double broad gauge railway track in cutting and embankment
	12 th	1	Permanent & temporary land width
4 th	13 th	1	Gradients for drainage
	14 th	1	Super elevation – necessity & limiting valued
	15 th	1	Definition, necessity of Points and crossings
	16 th	1	Assignment Evaluation
5 th	17 th	1	Types of points & crossings with tie diagrams
	18 th	1	Methods of Laying & maintenance of track
	19 th	1	Details of a permanent way

			inspector
	20 th	1	Definitions
6 th	21 st	1	Assignment Evaluation, Class Test
	22 nd	1	Components of a bridge
	23 rd	1	Classification of bridges
	24 th	1	Requirements of an ideal bridge
7 th	25 th	1	Selection of bridge site
	26 th	1	Quiz test
	27 th	1	Bridge alignments
	28 th	1	Determination of flood discharge
8 th	29 th	1	Waterway & economic span
	30 th	1	Afflux, clearance & free board
	31 st	1	Assignment Evaluation
	32 nd	1	Collection of bridge design data & sub surface investigation
9 th	33 rd	1	Scour depth minimum depth of foundation
	34 th	1	Types of bridge, foundations – spread foundation, pile foundation- pile driving, well foundation – sinking of wells, cassion foundation
	35 th	1	Coffer dams
	36 th	1	Types of piers
10 th	37 th	1	Types of abutments
	38 th	1	Types of wing walls
	39 th	1	Approaches
	40	1	Masonry bridges
11 th	41 st	1	Masonry bridges cont.
	42 nd	1	Steel bridges – classification with sketches Concrete bridges – classification, brief description
	43 rd	1	with sketches
	44 th	1	IRC bridge loading
12 th	45 th	1	Assignment Evaluation
	46 th	1	Types of culvers - brief description

			Types of causeways - brief description
	47 th	1	Types of bridge, components revision
	48 th	1	Classification of bridge, requirements revision
13 th	49 th	1	Selection of bridge site, alignment
	50 th	1	Determination of flood discharge doubt clear
	51 st	1	Waterway, economic span
	52 nd	1	Types of bridge foundation, spread foundation doubt clearing